

A REVISION OF THE GENUS *ANTHENE*  
FROM THE ORIENTAL REGION  
(LEPIDOPTERA : LYCAENIDAE)



BY

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# A REVISION OF THE GENUS *ANTHENE* FROM THE ORIENTAL REGION (LEPIDOPTERA : LYCAENIDAE)

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## SYNOPSIS

As a result of the study of the male genitalia the grouping of the species and subspecies in the genus is revised. Seven new taxa are described, and the species described as *Lycaenesthes rufimargo* Rothschild is removed to the genus *Pseudodipsas*.

## INTRODUCTION

THE rearrangement of the material in the British Museum (Natural History) has elicited the fact that Fruhstorfer's interpretation (1916 and 1923) of the relationships of the species and races contained in the genus *Anthene*, then known as *Lycaenesthes*, is much in need of revision. That author divided the genus into only two species which he gave as (a) *Lycaenesthes emolus* and (b) *Lycaenesthes lycaenina*; rather inconsistently he went on to say that *Lycaenesthes philo* must be separated from (a) on genitalic grounds. In the main, his species (a) and (b) do correspond with (a) and (b) below, but his placing of *lycaenoides* as a subspecies of *emolus* is quite wrong. Corbet & Pendlebury (1956) in dealing with the Malayan species did make some modifications, but a more general survey dealing with the named forms from the whole of the oriental region is now desirable. Toxopeus visited Tring Museum in the 1930s, and evidently intended to publish a revision of the genus; he selected types, placing name labels on the specimens; unfortunately the intended work never materialized. In the present survey, these names have been adopted where deemed necessary; they are indicated by the words "Toxopeus MS." in acknowledgement of their originator, and unless otherwise stated, the actual specimens selected by Toxopeus are designated as types.

All the forms here dealt with are very similar in outward structure and appearance. Study of the ♂ genitalia does however reveal that there are two main groups: (a) the *emolus* Godart group, which includes *selluttus* Röber, *paraffinis* Fruhstorfer, and *philo* Hopffer; and (b) the *lycaenoides* Felder group, which includes *licates* Hewitson, *villosa* Snellen, and *lycaenina* Felder.

Many subspecific names founded on inconstant or doubtful characters are to be found in the literature. In this work an attempt is made to assign such names to their correct species, although the inclusion of a name does not necessarily imply agreement that it does in fact represent a well differentiated subspecies. It should be noted that the localities given in the text are those represented in the B.M. (N.H.) collection; they do not in every case portray the full extent of the area inhabited by the species or subspecies concerned. The word (Type !) after a reference indicates that the type is in the B.M. (N.H.), and that it has been examined.

## ACKNOWLEDGEMENTS

The author wishes to express his thanks and appreciation to Sir Keith Cantlie, C.I.E. for his kindly aid in elucidating the status of *lycaenoides* and *lycaenina*.

*ANTHENE* Doubleday, 1847

Type-species: *Papilio larydas* Cramer, 1780.

*Anthene* Doubleday, 1847: 27.

*Lycaenesthes* Moore, 1865: 773.

*Lycaenesthes* Moore; Bethune-Baker, 1910: 14.

*Lycaenesthes* Moore; Fruhstorfer, 1916: 96.

*Lycaenesthes* Moore; Fruhstorfer, 1923: 896.

*Lycaenesthes* Moore; Aurivillius, 1924: 435.

*Anthene* Doubleday; Hemming, 1935: 435 [designation of type].

Diagnoses of the genus have been given by Bethune-Baker, Fruhstorfer and Aurivillius (as *Lycaenesthes*) and by Corbet as *Anthene*.

## KEY TO SPECIES

- |   |  |                             |
|---|--|-----------------------------|
| 1 | Underside fore wing, the median band is unbroken. ♀ forewing with a large white area in the disc on both surfaces . . . . .  | <i>lycaenoides</i> (p. 270) |
| - | Underside forewing, the median band is broken at either vein 2, 3, or 4. ♀ fore wing never with a clear white area on both surfaces . . . . .  | 2                           |
| 2 | Underside fore wing, the median band is broken at vein 3 . . . . .   | 3                           |
| - | Underside fore wing, the median band is broken at vein 2, or at 2 and 3 . . . . .  | 5                           |
| 3 | Underside fore wing without markings inwards of or below the discoidal spot . . . . .  | <i>lycaenina</i> (p. 269)   |
| - | Underside fore wing with irregular white markings inwards of or below the discoidal spot . . . . .   | 4                           |
| 4 | Underside fore wing, the white markings inwards of the discoidal spot take the form of a short stripe in the middle of the cell, and a long excurved stripe below it in area I . . . . .   | <i>licates</i> (p. 270)     |
| - | Underside fore wing, the white markings below the discoidal spot take the form of a line starting at the lower portion of the discoidal spot, and proceeding towards the hind margin and the base in a wide curve; in some examples, this line is still further extended to form a complete circle . . . . . | <i>villosa</i> (p. 271)     |
| 5 | Underside fore wing with transverse band very irregular in areas 3, 4, 5 and 6. Fringes all wings above, whitish . . . . .   | 6                           |



- Underside fore wing with transverse band fairly regular in areas 3, 4, 5 and 6.  
Fringes all wings pale fuscous . . . . . 7
- 6 Upperside all wings, intense shining violaceous. Underside, all markings large and well defined . . . . . *philo* (p. 266)
- Upperside all wings, dull violaceous. Underside pale, all markings weakly defined  
*lycaenolus* (p. 267)
- 7 Underside hind wing, the median band of spots is evenly curved, and scarcely nearer the margin in areas 4 and 5 than it is in area 2 . . . . . *emolus* (p. 257)
- Underside hind wing, the median band of spots bulges outward so that it is considerably nearer the margin in areas 4 and 5 than it is in area 2 . . . . . 8
- 8 Upperside all wings with a black marginal band of up to 1 mm. in width. Hind wing, with a submarginal series of internervular spots . . . . . *seltuttus* (p. 259)
- Upperside all wings with a scarcely perceptible hair-like black marginal band. Hind wing, with submarginal spots in areas 2 and 3 only . . . . . *paraffinis* (p. 263)

*Anthene emolus* (Godart)

The oldest name for this species would seem to be *Lampides balliston* Hübner (1823 : 11). Previously, authors have given the date 1819 or 1823 as the date of publication for *emolus* Godart, but according to Sherborn and Woodward (1899 : 595), (1906 : 578) the correct date is 1824 ; thus *emolus* is the junior name. As the name *balliston* has not been used as a primary synonym for more than 50 years, and as the species under consideration has for that period been known to entomologists as *emolus* Godart, it would appear that this is a case for application to the International Commission on Zoological Nomenclature—under Article 23 (B) (i) of the I.C.Z.N.—for the suppression of the name *balliston* Hübner as a *nomen oblitum*. This action is being taken, and it is hoped that the synonymy used in this paper will be confirmed in due course.

Subspecific names have been given as shown below ; they do not always represent very distinct races, and so are listed without comment. Continental dry season forms are considerably paler in colour on both surfaces.

(1) *A. emolus emolus* (Godart)

(Textfigs. 7, 21 and 22)

*Lampides balliston* Hübner, 1823 : 11, figs. 229-230, " aus Georgien in Florida ", [nomen oblitum].

*Polyommatus emolus* Godart, 1824 : 656, Bengal.

*Lycaenesthes bengalensis* Moore, 1865 : 773, pl. 41, fig. 9.

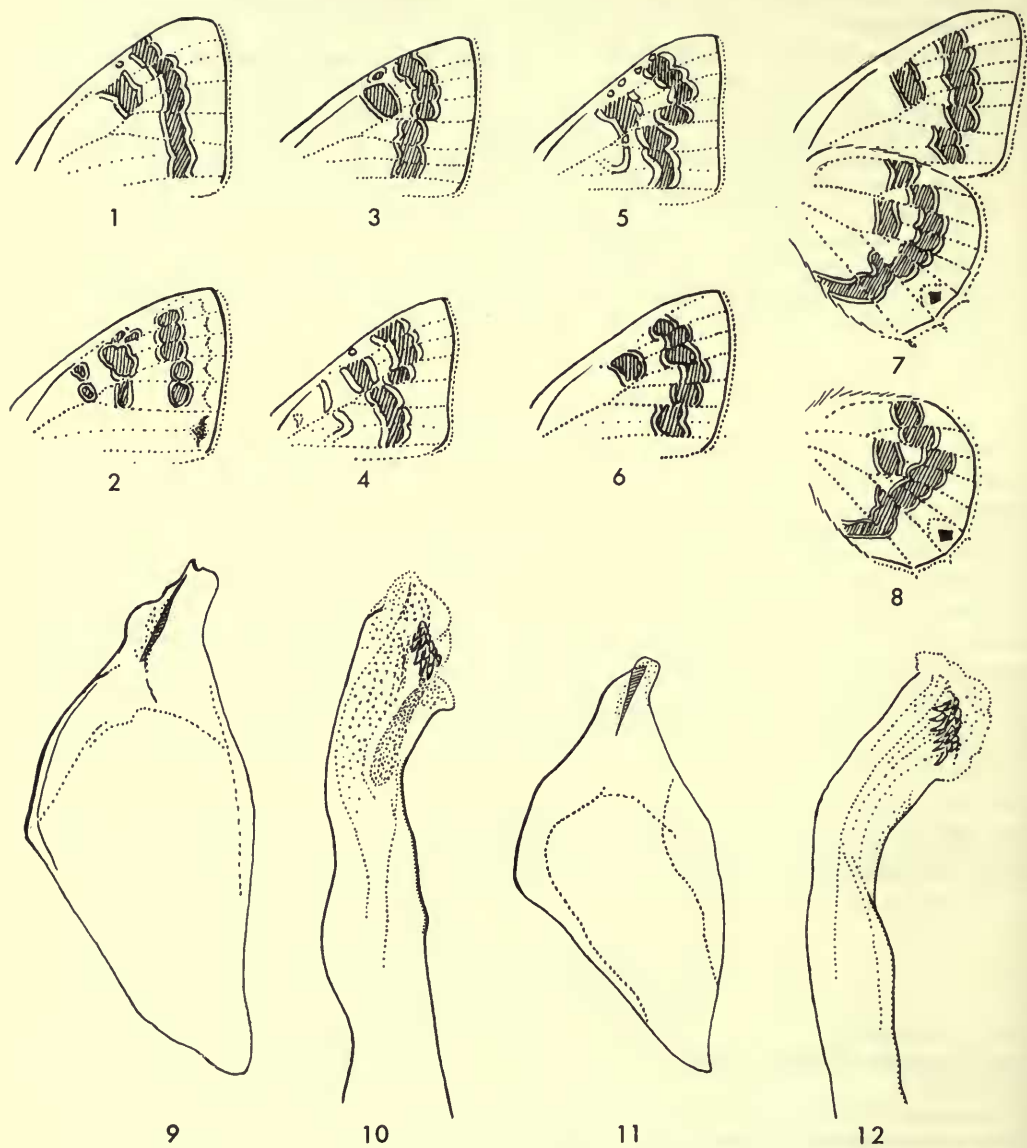
*Lycaenesthes balliston* (Hübner) Semper, 1879 : 165.

*Plebeius balliston* (Hübner) Kheil, 1884 : 28.

*Nacaduba klanga* Corbet, 1938 : 143.

*Anthene emolus* (Godart) Corbet, 1956 : 457.

In B.M. (N.H.) from South India, NW. India, Bhutan, Sikkim, Assam, Burma, and Tenasserim.



FIGS. 1-12. 1-6. ♂ underside fore wing (diagrammatic): 1. *Anthene lycaenoides*; 2. *Pseudodipsas rufimargo*; 3. *Anthene lycaenina*; 4. *A. licates*; 5. *A. villosa*; 6. *A. philo.* 7. ♂ fore and hind wing, *A. emolus*. 8. ♂ hind wing, *A. seltuttus*. 9 and 11. clasper: 9. *Pseudodipsas rufimargo*; 11. *P. digglesii*. 10 and 12. aedeagus: 10. *P. rufimargo*; 12. *P. digglesii*.

(2) *A. emolus andamanicus* (Fruhstorfer)*Lycaenesthes emolus andamanicus* Fruhstorfer, 1916 : 97, Andamans.*Anthene emolus andamanicus* (Fruhstorfer) Cantlie, 1963 : 67.

In B.M. (N.H.) from Andamans.

(3) *A. emolus goberus* (Fruhstorfer)*Lycaenesthes emolus goberus* Fruhstorfer, 1916 : 97, North Borneo.*Anthene emolus goberus* (Fruhstorfer) Corbet, 1956 : 291.

In B.M. (N.H.) from Siam, Malaya, Sumatra, Borneo, and Hainan.

(4) *A. emolus modesta* (Staudinger) **comb. n.***Pseudodipsas modesta* Staudinger, 1889 : 104, Palawan.

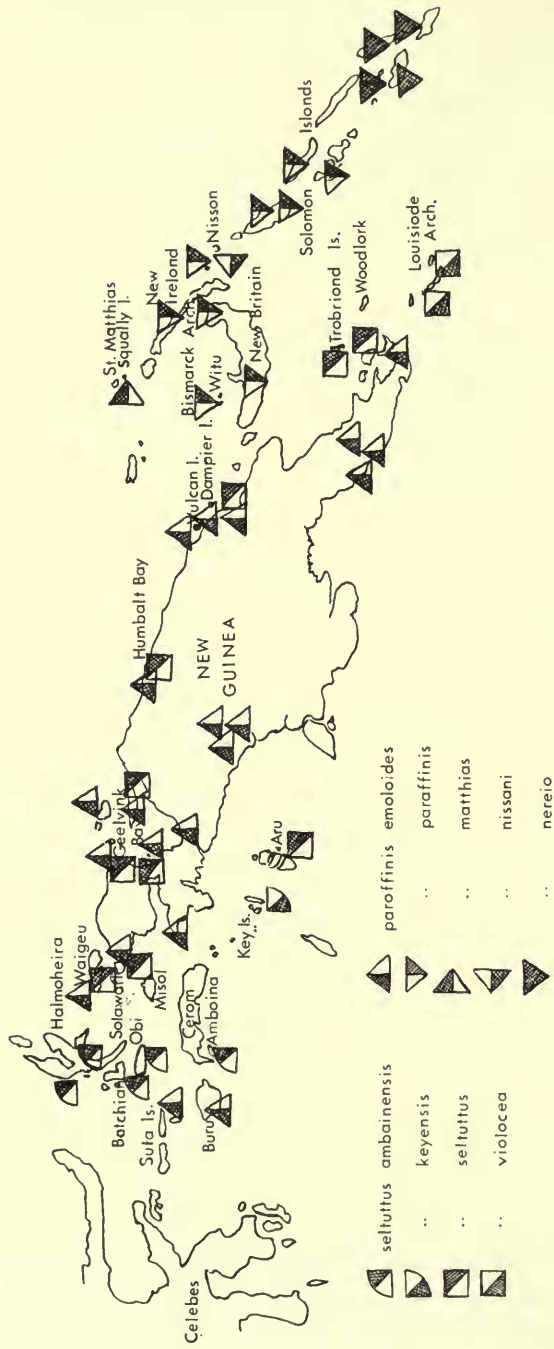
In B.M. (N.H.) 2 ♂, 1 ♀, Palawan.

(5) *A. emolus minor* (v. Eecke) **comb. n.***Lycaenesthes emolus minor* v. Eecke, 1918 : 94, Pulo Babi.(6) *A. emolus javanus* (Fruhstorfer) **comb. n.***Lycaenesthes emolus javanus* Fruhstorfer, 1916 : 97, E. Java.

In B.M. (N.H.) from Java and Sumbawa.

*Anthene seltuttus* (Röber)

The races grouped here under *seltuttus* and *paraffinis* have long been treated as conspecific with *emolus*. Examination of the male genitalia shows that while *seltuttus* and *paraffinis* are indistinguishable, *emolus* differs in the size and shape of the clasper, rendering its specific separation necessary. According to the data labels on the material examined, both the other species occur together in certain localities, yet over parts of the range, each occurs as a well differentiated geographic entity. They can be distinguished in the male by the presence on the upperside of *seltuttus* of a dusky wide margin of up to 1 mm. on all wings, and of a usually complete series of black submarginal spots on the hind wing; in *paraffinis*, on the upperside by the brighter violaceous ground colour, the hair-like appearance of the wing margins, and by the presence on the hind wings of only two black submarginal spots situated in areas 2 and 3. The undersides of the two species in both sexes are very similar, but careful comparison reveals the following points: *seltuttus*, on the fore wing the spots forming the median band tend to coalesce, those in areas 5-6 though irregularly placed form a fairly straight line, the hachures enclosing the submarginal spots are sharply acute, especially those on the hind wing; *paraffinis*: the spots of the fore wing median band are smaller, rounder, and those in areas 3-7 form a rough arc, the submarginal hachures tend to be less acute, those on the fore wing often being almost straight.



The distribution of *Anthene seluttus* and *A. paraffinis* in the Papuan Region as instanced by the material in the B.M. (N.H.).

(1) *A. seltuttus amboinensis* (Butler) **comb. n.**

*Lycaenesthes amboinensis* Butler, 1899 : 343, Amboina. (Type!).

The material listed below is insufficient to provide a sure guide to the subspeciation obtaining in the Moluccas. As far as can be judged, the males from Halmaheira and Obi do not differ from Butler's type from Amboina. The female that that author described and compared with *L. turneri* (= *lycaenoides godeffroyi* Semper) is almost certainly an example of *A. lycaenoides lycaenoides* (Felder), as he states that it was in the Hewitson collection, and the only specimen from that collection in the B.M. is certainly of that species. The solitary *amboinensis* ♀ in the B.M. is from the island of Obi; it is described below, but in view of the fact that it is not known whether it is identical with females from Amboina, it is not proposed to select this insect as the neallotype.

Fore wing upperside, fuscous with a large but ill defined patch of lavender, which covers the basal two-thirds of area 1, the basal halves of areas 2 and 3, and extends into areas 4 and 5, and the cell in the neighbourhood of the discoidal.

Hind wing upperside, fuscous with a sparse scattering of lavender scales, a series of six inter-neural black submarginal spots, each spot being encircled by an obscure lighter ring and bounded outwardly by a white stripe.

The underside is similar to that of the ♂; it is not more varied with white as stated by Butler.

A ♀ from Batchian is larger and darker, the lavender patch on the fore wing being represented only by a very few scattered lavender scales disposed mainly in area 1. More material is needed in order to ascertain if the Batchian examples represent a new subspecies.

In B.M. (N.H.) from MOLUCCAS: Amboina, 1 ♂, 1910 (*Rey*); Amboina, 1 ♂ (holotype) (Coll. Walker); Halmaheira, 8 ♂; Obi, 11 ♂, 1 ♀; Ternate, 1 ♂ (*Doherty*); Batchian, 2 ♀, 1 ♀.

(2) *A. seltuttus keyensis* **ssp. n.**

*Lycaenesthes emolus keyensis* Toxopeus MS.

This subspecies is very similar to *s. amboinensis*, only differing from it as follows: upperside ♂, the dusky marginal line is distinctly narrower; upperside ♀, the lavender scaling is much less intense, appearing as a pale cloud on the dusky ground of the forewing; underside ♂♀, the ground colour is distinctly paler than that of either *amboinensis* or *seltuttus*.

As Toxopeus selected an abnormal specimen as holotype, an example that serves better to characterize the race has been designated below.

Holotype ♂. KEY ISLANDS: Little Key, 19.iii.1897 (*H. Kuhn*), B.M. Type No. Rh. 18345.

Allotype ♀. As holotype, 21.ii.1897, B.M. Type No. Rh. 18346.

Other examples in B.M., KEY ISLANDS: Little Key, 10 ♂, 1 ♀; Kisseoi, Watoebela, 1 ♂ (*Kuhn*).



(3) *A. seltuttus seltuttus* (Röber) **comb. n.**

(Pl. 1, fig. 37; Pl. 2, fig. 49. Text-figs. 8, 25, and 26)

*Plebeius seltuttus* Röber, 1886: 67, Pl. 5, fig. 24, Aru.*Lycaenesthes aruana* Butler, 1899: 344, Aru.

The ♂ is not to be distinguished in any way from that sex of *s. amboinensis*.

Röber figures and describes the ♀ as having a white patch on the fore wing. Butler also describes the white patch, and mentions two such examples in the B.M. These white-patched insects are still in the collection together with six other females from Aru which exhibit no indication of a white patch; this suggests that in the majority of females the fore wing is completely fuscous, as are all *seltuttus* females from New Guinea.

In B.M. (N.H.) from ARU: 21 ♂, 8 ♀, various collectors. NEW GUINEA: Waigeu, 1 ♂ (*Waterstradt*); Salwatti, 1 ♂ (*Wallace*); Kapaur, 3 ♂, 2 ♀ (*Doherty*); I. of Amberfron, 1 ♂, 1909 (*C. & F. Pratt*); Ansus, Jobi, 1 ♀, 1892 (*Doherty*); Dorei Bay, 1 ♀, 1909 (*C. & F. Pratt*); Humbolt Bay, 2 ♂, 1 ♀ (*Swinhoe Coll.*); Humbolt Bay, 2 ♂, 6 ♀, 1892 (*Doherty*); Astrolabe Bay, 7 ♂, 2 ♀ (*C. Wahnes*); Stephansort, 1 ♂; Berlinhafen, 1 ♂ (*Fruhstorfer*); Woodlark I., 1 ♂, 4 ♀, iv. 1897 (*A. S. Meek*); Fergusson I., 7 ♂, 3 ♀, 1894-5 (*Meek*); Kiriwini, Trobriand Is., 10 ♂, 5 ♀, 1895 (*Meek*).

(4) *A. seltuttus violacea* (Butler) **comb. n.***Lycaenesthes violacea* Butler, 1899: 343, St. Aignan.

Slightly smaller, but very similar to the nominate subspecies, only differing as follows.

Upperside ♂. The colour is clearer less dingy violaceous, and the blackish submarginal spots on the hind wing, and the margins of all wings are more definitely defined and neater in appearance.

Upperside ♀. A very slight greyish lightening is present on the disc of the fore wing.

Underside ♂♀. Very like that of the nominate race.

In B.M. (N.H.) from LOUISIADDES: St. Aignan, 3 ♂ (including type), 3 ♀; Rossell Island, 2 ♂, 2 ♀; Sudest Island, 6 ♂, 1 ♀ (all collected by *A. S. Meek*).

(5) *A. seltuttus affinis* (Waterhouse & Turner) **comb. n.***Lycaenesthes modestus* Waterhouse, 1903: 198 [nec *modesta* Staudinger].*Lycaenesthes emolus affinis* Waterhouse & Turner, 1905: 801.

Differs from all other subspecies by the almost lilac violaceous colour of the male above, and by the pale grey-fawn ground of the underside in both sexes.

In B.M. (N.H.) from AUSTRALIA: Port Darwin; Cape York; Thursday I.; Groote Eylandt, Northern Territory; Kuranda; Cooktown; Cedar Bay; Bowen; Mackay.

*Anthene paraffinis* (Fruhstorfer)(1) *A. paraffinis emoloides* ssp. n.

(Pl. 1, figs. 35-36; Pl. 2, figs. 47-48)

*Lycaenesthes emoloides emoloides* Toxopeus MS.

♂. The upperside on all wings is deep violaceous, and the dark margins are extremely fine. Dusky submarginal spots, each edged distally by a whitish line, are present in areas 1 and 2 of the hind wings.

♀. The upperside on all wings is dingy fuscous, having on the fore wing a diffusely margined whitish grey-blue area of individually variable extent. This area usually covers the basal half of areas 1 and 2, sometimes extending into the lower part of the cell and the adjoining parts of areas 3 and 4. On the hind wing, there is a series of dusky triangular submarginal spots, each spot margined outwardly with a whitish stripe.

Holotype ♂. BRITISH NEW GUINEA: Hydrographer Mountains, 2500 ft., i. 1918 (*Eichhorn Bros.*), B.M. Type No. Rh. 18347.

Allotype ♀. As holotype, i-ii. 1918, B.M. Type No. Rh. 18348.

Other examples in B.M. (N.H.). BRITISH NEW GUINEA: as holotype, 12 ♂, i-ii. 1918; Kumusi R., 5 ♂, 1907 (*A. S. Meek*); Aroa R., 4 ♂ (*Meek*); Welsh R., 2 ♂ (*Weiske*); Milne Bay, 2 ♂, 1 ♀, 1899 (*Meek*); Port Moresby, 2 ♂; St. Joseph R., 1 ♂ (*Weiske*); Astrolabe Range, 2 ♂, 2 ♀, 1917 (*Dodd*); Haidana, Collingwood Bay, 1 ♀, iv. 1907 (*Meek*); Yule I., 1 ♂, 1875 (*L. M. d'Albertis*). MANDATED NEW GUINEA: Stephansort, 1 ♂, 27. x. 1894 (*Dr. Hagen*); Dampier I., 7 ♂, 1 ♀, ii-iii. 1914 (*Meek*); Vulcan I., 7 ♂, 4 ♀, 1913-4 (*Meek*). DUTCH NEW GUINEA: Nr. Oetakwa R., Snow Mts., 3 ♂, 1910 (*Meek*); Base Camp, Utakwa R., Sea Level, 3 ♂, 1912-3 (*A. F. R. Wollaston*); Upper Setekwa R., Snow Mts., 2-3000 ft., 4 ♂, 1910 (*Meek*); Eilanden R., 2 ♂, xii. 1910 (*Meek*); Mt. Goliath, 1 ♀, iii. 1911 (*Meek*); Sabron, Cyclops Mts., 2 ♂, v. 1936 (*L. E. Cheesman*); Njau Limon, S. of Mt. Bougainville, 300 ft., 1 ♂, 1936 (*Cheesman*); Sorong, 2 ♂, 1876 (*A. J. Bruijn*); Humbolt Bay Area (variously labelled) 4 ♂, 1 ♀; Kapaur, 6 ♂, 1 ♀ (*Doherty*); Jobi I., 5 ♂, 8 ♀ (*Doherty*); Mefor I., 1 ♂, 1 ♀ (*Doherty*); Roon I., 5 ♂, 1 ♀ (*Pratt*); Roon I., 1 ♂ (*Doherty*); Amberfron I., 2 ♂, 1 ♀ (*Pratt*); Biak, Schouten Is., 2 ♀ (*Pratt*); Wandesi, 8 ♂ (*Doherty*); Wangaar R., 15 miles from the Coast, 600 ft., 1 ♂, 1921 (*Pratt*); Waigeu, 11 ♂, 5 ♀; Salwatti, 2 ♂. MOLUCCAS: Misol, 5 ♂, 1 ♀; Buru, 1 ♂, 3 ♀; Sula Is., 2 ♀.

(2) *A. paraffinis paraffinis* (Fruhstorfer) comb. n.

(Text-figs. 27-28)

*Lycaenesthes emolus paraffinis* Fruhstorfer, 1916: 99, Neu Lauenberg (Duke of York I.).

The ♂ is not to be distinguished from that of *p. emoloides*, but the absence of the whitish grey-blue patch on the fore wing of the ♀ renders the separation of the two races necessary. The ♀ occurs in two forms.

(a) All wings are fuscous brown above. There is on the hind wing a series of 5 triangular submarginal black spots, each edged inwardly by a white hachure, and outwardly by a white stripe; on the basal portions of all wings is a scattering of bright blue scales.



(b) Similar to above, but the blue scaling is extended and intensified so that it covers about two-thirds of the wing area, leaving only the costa, the apical area, and the distal margin of the fore wing fuscous. In some examples on the hind wing the blue reaches almost to the distal margin.

In the B.M. (N.H.) from BISMARCKS: New Britain; Feni I.; Witu (French I.); New Ireland; Duke of York I. SOLOMONS: Bougainville; Vella Lavella; Guizo I.; Choiseul I.; Alu, nr. Shortland I.; Rendova; Treasury.

(3) *A. paraffinis nissani* ssp. n.

(Pl. 1, figs. 31-32; Pl. 2, figs. 43-44)

♂. On the upperside, only differs from nominate race by the brighter, more intense purple lustre.

♀. The upperside is similar to that of the blue form of *p. paraffinis*, the blue colour being even denser and more extended with a resulting reduction in width of the fuscous discal margin of the fore wing, and causing the black submarginal spots on the hind wing to stand out clearly on the blue field.

In both sexes, the underside is characterized on all wings by a chalk-like whitish suffusion of the ground colour, which, though present in all parts of the wings is most intense between the median band and the submarginal markings. All the wing markings are dun coloured and contrast strongly with the whitish ground, thus forming a parallel development to that of *Catopyrops ancyra distincta* Tite (1963: 106) from the same habitat.

Holotype ♂. SOLOMONS: Nissan I., 1924 (*A. F. Eichhorn*), B.M. Type No. Rh. 18349.

Allotype ♀, as holotype, B.M. Type No. Rh. 18350.

Other examples in B.M. (N.H.), 3 ♂, 1 ♀.

(4) *A. paraffinis matthias* ssp. n.

(Pl. 1, figs. 29-30; Pl. 2, figs. 41-42)

♂. The upperside ground colour is of a lighter more reddish violaceous tint than is that of the otherwise very similar *p. paraffinis*.

♀. On the upperside like that of the nominate race, the colour varying individually from fuscous brown with a small basal admixture of blue scales to examples in which the blue colour extends over most of the wings.

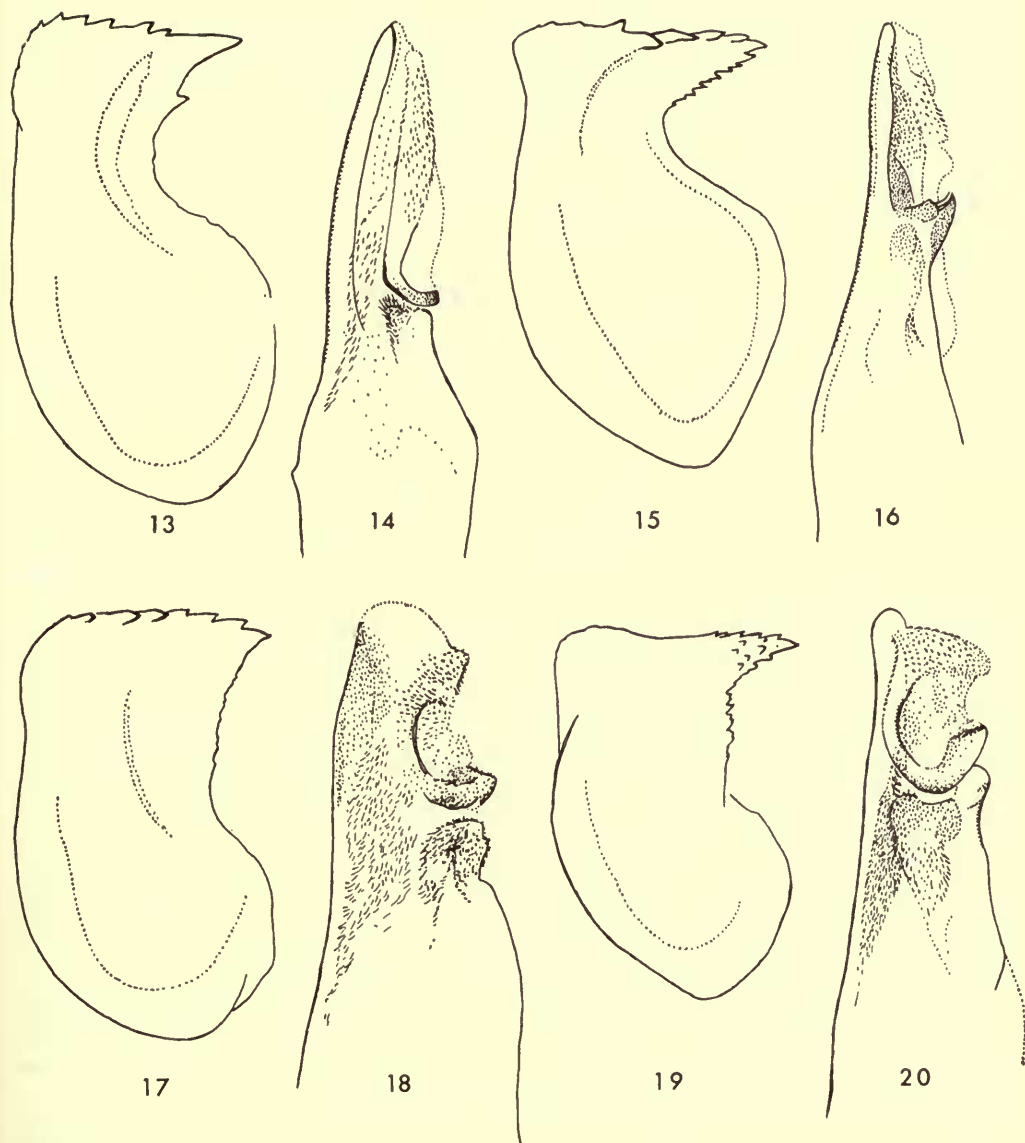
Underside in both sexes. The ground colour is pale grey-brown, much colder in tone than that of *p. paraffinis*; a distinct difference in colour, which is immediately observable on arranging a series of each subspecies side by side. The pattern of the spotting exhibits no distinctive character, but there is no trace of the white suffusion so evident in *p. nissani*.

In size it is consistently smaller than the nominate subspecies.

Holotype ♂. ST. MATTHIAS GROUP: St. Matthias I., vi. 1923 (*A. F. Eichhorn*), B.M. Type No. Rh. 18351.

Allotype ♀. As holotype, vi-vii. 1923, B.M. Type No. Rh. 18352.

Other examples in B.M. (N.H.) from ST. MATTHIAS GROUP: as holotype, 3 ♂, 6 ♀; Squally I., 7 ♂, 1 ♀, 1923 (*A. F. Eichhorn*).



FIGS. 13-20. Odd numbers clasper, even numbers aedeagus : 13-14. *Anthene lycaenoides* ;  
 15-16. *A. licates* ; 17-18. *A. lycaenina* ; 19-20. *A. villosa*.

(5) *A. paraffinis nereia* ssp. n.

(Pl. 1, figs. 33-34; Pl. 2, figs. 45-46)

*Lycaenesthes emoloides nereia* Toxopeus MS.

Both sexes are very similar to *p. paraffinis*, but they differ in the fore wing by having a slightly more obtuse apex and a more convex distal edge.

On the underside, the white edges of the spots forming the transverse median band are wider and more noticeable; the spots themselves are larger, and because of this appear to fuse with one another, giving the appearance of a solid band rather than a chain of separate spots.

♀. The blue scaling on the upperside is present in all examples seen, but it is of a subdued, more violaceous hue than that found in females of *p. paraffinis*.

As Toxopeus labelled an example of *p. paraffinis* from Guizo Island as allotype, a female as listed below has been designated.

Holotype ♂. SOLOMONS: Guadalcanar, v. 1891 (*A. S. Meek*), B.M. Type No. Rh. 18353.

Allotype ♀. As holotype, iv. 1891, B.M. Type No. Rh. 18354.

Other examples in B.M. (N.H.) from SOLOMONS: as holotype, 1 ♂; Guadalcanar, 1 ♂, 1 ♀ (*Woodford*); Gela (= Guadalcanar) or Guadalcanar without further details, 9 ♂; Florida I., 2 ♂; Tulagi, 1 ♂, 1 ♀; Ugi, 1 ♂, 1 ♀ (*G. F. Mathew*); Uru Bay, Malaita, 2 ♂ (*Woodford*).

*Anthene philo* (Hopffer)(1) *A. philo philo* (Hopffer) comb. n.

(Text-figs. 6, 23, 24)

*Lycaena philo* Hopffer, 1874: 27, ♂.*Lycaenesthes leocrates* Hewitson, 1878: 220, pl. 90, figs. 5 and 10, Macassar, (Type!), ♀.*Lycaenesthes philo* f. *praeclara*, Fruhstorfer, 1923: 897, Kalawara.

It is most probable that *emolus*, *philo*, and *seltuttus* are of common stock, and each so far as is known inhabits separate territory. In spite of this, they do each exhibit constant differences in both pattern of the markings on the underside, and in the formation of the valves. These facts serve to indicate that the divergence has reached a stage that renders treatment as separate species desirable.

This species and *lycaenolus* can be instantly recognized from other members of the genus by the arrangement of the spots forming the median band on the underside of the fore wing; spots 1, 2, and 3 are in echelon, spot 3 being nearest the distal margin; spot 4 is placed inwards towards the base of the wing; spot 5 is placed outwards; spot 6 is placed well inwards. This arrangement gives the whole band a most distinctive sinuous appearance.

Fruhstorfer described the form *praeclara* from Kalawara to the south of Palu (Paloe), stating that it is larger, lighter above, and with more rounded hind wings. The only example from that locality in the B.M. is not noticeably lighter in colour, but it is certainly rather large, and has rounded hind wings.

In B.M. (N.H.) from CELEBES: Bangkei, 1 ♂, 1885 (*H. Kuhn*); Saleyer, 1 ♂ (*Fruhstorfer*); South and East Celebes, 16 ♂, 4 ♀ (including type of *leocrates* from Makassar). SULA ISLANDS: Sula Mangoli, 6 ♂, x. 1897 (*Doherty*); Ufolu, Mangoli, 3 ♂, xi. 1897 (Crowley Bequest). TOEKAN BESI: Binongka, 1 ♂ (*Kuhn*).

(2) *A. philo scintillans* ssp. n.

(Pl. 1, fig. 38 ; Pl. 2, fig. 50)

*Lycaenesthes emolus scintillans*, Toxopeus, MS.

♂. The upper surface scarcely differs from that of the nominate subspecies, examples in the B.M. only showing a more vivid shining purple colour. On the under surface, on all wings the general tone is slightly deeper brown, and the submarginal spots and lunules are more clearly marked. All the spots forming the median band are much larger, and exhibit a greater tendency to coalesce ; the double spot in area 1 of the fore wing is extended inwards towards the base, forming a rough representation of a heart. All the markings are clearly emphasized by white rings. The tornal spot on the hind wing is narrowly margined inwardly by a dingy orange lunule.

♀. On the upper surface, the ground colour is rich nigger-brown, deeper in tint than that of Celebes females. The under surface is similar to that of the males.

Holotype ♂. TALAUT : ii-iii.1892 (*Doherty*), B.M. Type No. Rh. 18355.

Allotype ♀. As holotype, B.M. Type No. Rh. 18356.

Other examples in B.M. from TALAUT : as holotype, 5 ♂. SANGIR : 6 ♂, 1 ♀, ii-iii.1892 (*Doherty*) ; 1 ♂ (*Rosenberg*).

*Anthene lycaenolus* sp. n.

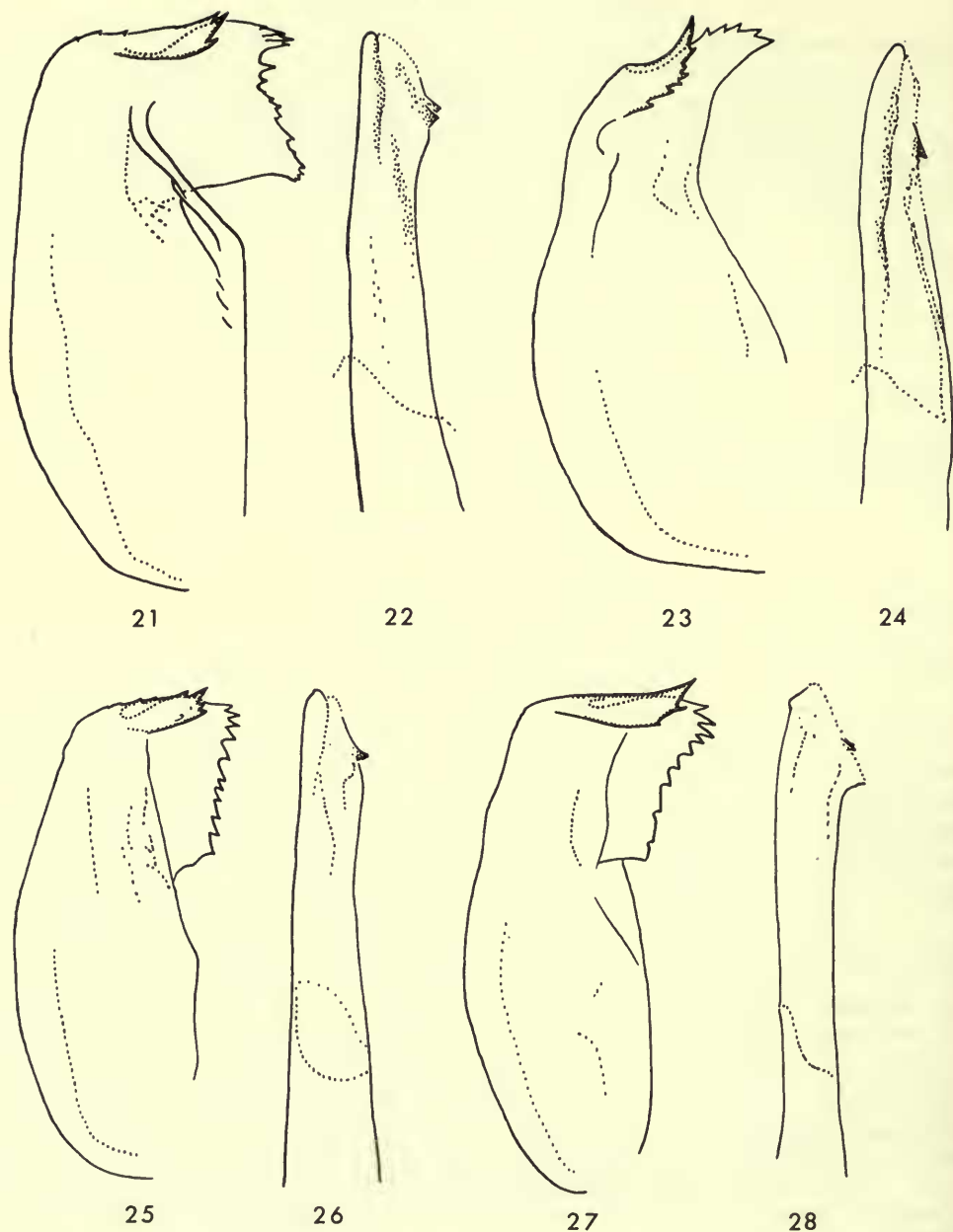
(Pl. 1, fig. 39 ; Pl. 2, fig. 51)

*Lycaenesthes lycaenolus* Toxopeus MS.

From the material available, it is not possible to be sure of the true status and affinities of this insect. The male genitalia are not to be differentiated from those of *philo*. The exterior, although exhibiting most of the characters of *philo*, is distinctive enough to suggest a subspecific separation, were it not for the fact that the species in question is apparently already represented in Talaut by *philo scintillans*. Possibly *lycaenolus* is just a form occurring together with *scintillans*, but this seems rather unlikely as no similar forms are to be found among the series from Sangir, Celebes, or the Sulu Islands. The labelling of all specimens concerned is not very detailed, and may possibly conceal the fact that *lycaenolus* actually does occur in isolation ; in view of these considerations, it is deemed advisable to treat it as a species until material with much more detailed data is available.

♂. The upperside is dull mauve, without any indication of the iridescence so characteristic of *p. scintillans*. On the hind wing, the submarginal black spots in areas 1 and 2 are vestigial or absent. The underside is much paler in tone ; all the median markings are in lesser contrast with the ground colour, being also less distinctly margined with white. The spots forming the median series are much smaller, rounder, and usually distinctly separate. In contrast, the submarginal spots on the hind wing are black, and stand out clearly, each on a clear near-white area which is bounded outwardly by the dark marginal line, and inwardly by the submarginal lunule ; except for the tornal spot in area 2, which is inwardly accompanied by a large orange red lunule of quite three times the extent of the similarly placed lunule in any of the *philo* subspecies.

♀. The upperside is brown with a slight tawny tint, on which the submarginal spots of the hind wing are more clearly defined than in that sex of *scintillans*. The fringes are dingy white, and the underside is like that of the ♂.



FIGS. 21-28. Odd numbers clasper, even numbers aedeagus: 21-22. *Anthene emolus*; 23-24. *A. philo*; 25-26. *A. seltuttus*; 27-28. *A. paraffinis*.

Holotype ♂. TALAUT: (*Doherty*), B.M. Type No. Rh. 18357.

Allotype ♀. As holotype, ii-iii. 1892, B.M. Type No. Rh. 18358.

Other examples in B.M. (N.H.) from TALAUT: as holotype, 6 ♂, 2 ♀.

*Anthene lycaenina* (Felder)

This species can be recognized by the rather acute apex of the fore wing, the definitely lavender hue of the upper surface in the male, and by the spot at the base of area 7 on the under surface of the hind wing being in the great majority of individuals black and punctiform; the last named character must be used with caution, as in occasional examples this spot shows a transitional tendency towards the colour, size, and shape of that obtaining in other species of the genus.

Corbet (1938a: 250) in dealing with the subspecies *miya*, states that *lycaenina* is the Ceylon subspecies of *lycaenoides*. Examination of the genitalia of the type of *lycaenoides* proves beyond doubt that the two are not conspecific, and the name *lycaenina* is the oldest name for the species under discussion.

(1) *A. lycaenina lycaenina* (Felder)

(Text-figs. 3, 17 and 18)

*Lycaenesthes lycaenina* Felder, 1868: 281, Ceylon.

*Lycaenesthes orissica* Moore, 1884: 23, Orissa.

*Anthene lycaenina* (Felder) Cantlie, 1963: 67.

In B.M. (N.H.) from Ceylon and South India.

(2) *A. lycaenina lycambes* (Hewitson)

*Lycaenesthes lycambes* Hewitson, 1878: 220, pl. 90, figs. 11-12, North India (Type!).

*Anthene lycaenina lycambes* (Hewitson) Cantlie, 1963: 67.

In B.M. (N.H.) from NW. India, Sikkim, Assam, Burma, Laos, and Hainan.

(3) *A. lycaenina miya* (Fruhstorfer)

*Lycaenesthes lycaenina miya* Fruhstorfer, 1916: 101, Borneo; NE. Sumatra.

*Anthene lycaenoides miya* (Fruhstorfer) Corbet, 1938a: 249.

*Anthene lycaenoides miya* (Fruhstorfer); Corbet, 1956: 291.

In B.M. (N.H.) from Andamans, Siam, Malaya, Sumatra, and Borneo.

(4) *A. lycaenina togata* (Fruhstorfer)

*Lycaenesthes lycaenina togata* Fruhstorfer, 1916: 101, Lombok.

*Lycaenesthes lycaenoides bogorensis* Toxopeus, 1929: 219, E. Java. **syn. n.**

*Anthene lycaenina togata* (Fruhstorfer) Corbet, 1938a: 250.

In B.M. (N.H.) from Java, Lombok and Sumbawa.



(5) *A. lycaenina villosina* (Fruhstorfer) **comb. n.**

*Lycaenesthes lycaenina villosina* Fruhstorfer, 1923 : 898, Luzon.

Represented in the B.M. (N.H.) by three very ancient examples, all of which on the underside of the hind wing have the spot in the base of area 7 lozenge-shaped and coloured as are the other spots.

In B.M. (N.H.) from LUZON : 1 ♂ (ex Semper).

*Anthene lycaenoides* (Felder)

Both sexes can be readily distinguished by the unbroken median band on the underside of the fore wing. The ♂ is similar in shape and colour to that sex of *lycaenina*, but the ♀ differs by the presence of a white discal patch on both upper and under side of the fore wing.

(1) *A. lycaenoides lycaenoides* (Felder)

(Text-fig. 1)

*Dipsas lycaenoides* Felder, 1860 : 454, Amboina, (Type!).

*Anthene lycaenoides* (Felder) Corbet, 1956 : 457.

In B.M. (N.H.) from Amboina, Ceram, and Ceram Laut.

(2) *A. lycaenoides pegobates* (Holland) **comb. n.**

*Lycaenesthes pegobates* Holland, 1900 : 71, Buru.

In B.M. (N.H.) from Buru, Halmaheira, Ternate and Obi.

(3) *A. lycaenoides sutrana* (Fruhstorfer) **comb. n.**

*Lycaenesthes lycaenina sutrana* Fruhstorfer, 1916 : 102, Snow Mountains, Dutch New Guinea, (Type!).

In B.M. (N.H.) from Key Islands, and New Guinea.

(4) *A. lycaenoides godeffroyi* (Semper) **comb. n.**

(Text-figs. 13-14)

*Lycaenesthes godeffroyi* Semper, 1879 : 165, Bowen.

*Lycaenesthes turneri* Miskin, 1890 : 39, Cape York.

*Lycaenesthes turneri* Miskin; Waterhouse, 1903 : 199 [= *L. godeffroyi* Semper].

In B.M. (N.H.) from Queensland.

*Anthene licates* (Hewitson)

The formation of the aedeagus and claspers together with the superficial characters given in the key serve to illustrate the specific separation of *lycaenoides*, *licates* and *villosa*.



(1) *A. licates licates* (Hewitson)

(Text-figs. 4, 15 and 16)

*Lycaenesthes licates* Hewitson, 1874 : 350, Makassar, (Type!).*Lycaenesthes lycaenina licates* Hewitson ; Fruhstorfer, 1916 : 101, (part.).*Anthene licates* (Hewitson) Corbet, 1938a : 249.In B.M. (N.H.) from CELEBES : Makassar, 1 ♂ (*Hewitson Coll.*), (Type) ; Minehassa, 1 ♂, 1897 (*Semper Coll.*).(2) *A. licates dusuntua* Corbet*Anthene licates dusuntua* Corbet, 1940 : 40, Selangor, (Type!).In B.M. (N.H.) from MALAYA : Dusuntua, Selangor, 2 ♂ (including type) (*W. H. Evans*) ; Kuala Tahan, 1 ♂ (*Evans*) ; Ginting Sempak, 1 ♂, v. 1933 (Ex. F. M. S. Mus.) ; Malakka, 1 ♂, 1904 (*J. Waterstradt*). SUMATRA : Lebong Tandai, W. Sumatra, 4 ♂, 1923 (*C. J. Brookes*) ; NE. Sumatra, 2 ♂ (*Dr. Martin*).(3) *A. licates addenda* (Fruhstorfer)*Lycaenesthes lycaenina addenda* Fruhstorfer, 1916 : 101, Palawan.*Anthene licates addenda* (Fruhstorfer) Corbet, 1938a : 250.

There are no specimens of this subspecies in the B.M., but from the description there can be little doubt that it is correctly placed here.

(4) *A. licates philetas* (Fruhstorfer), **comb. n.***Lycaenesthes lycaenina philetas* Fruhstorfer, 1916 : 102, Batjan.Fruhstorfer's mention of the basal white stripes of the fore wing underside suggests that he was dealing with a race of *licates*.In B.M. (N.H.) from MOLUCCAS : Laiwui, Obi, 1 ♂, ix. 1897 (*Doherty*). NEW GUINEA : Momi Coast (= Wariab), Arfak Pen., 1 ♂, 1928 (*Dr. E. Mayr*) ; Kapaur, low c., 1 ♂, 1896-7 (*Doherty*).*Anthene villosa* (Snellen) **comb. n.**

(Text-figs. 5, 19 and 20)

*Pseudodipsas villosa* Snellen, 1878 : 24, pl. 1, fig. 6.*Lycaenesthes lycaenina licates* Hewitson ; Fruhstorfer, 1916 : 101, (part.).Fruhstorfer assumed from Snellen's description and figure that *villosa* was a synonym of *licates*. Comparison of Hewitson's type and the Celebes material in the B.M. makes it clear that *villosa* is a distinct species, differing not only as stated in the key, but showing also distinctive characters in the shape of the claspers and of the aedeagus.In B.M. (N.H.) from CELEBEAN REGION : Sangir, 1 ♀, 1892 (*Doherty*) ; Talaut, 1 ♂, 1892 (*Doherty*) ; Siao, 1 ♂, 1896 (*Doherty*) ; South Celebes, 16 ♂, 1 ♀ (various) ; Tawaya, N. of Palos Bay, 1 ♂ (*Doherty*).As the next species was described as a *Lycaenesthes* it is included here.

*Pseudodipsas rufimargo* (Rothschild), **comb. n.**

(Pl. 1, fig. 40; Pl. 2, fig. 52. Text-figs. 2, 9 and 10)

*Lycaenesthes rufimargo* Rothschild, 1915: 390, Vulcan Island, (Type!).

Examination of the unique holotype reveals that the species cannot be retained in the genus *Anthene*, and that in fact it is closely allied to *Pseudodipsas digglesii* Hewitson.<sup>1</sup> The characters substantiating this are: the eyes are naked; the palpi are covered with compact scales giving a smooth effect, whereas those of *Anthene* are hair-like and give a shaggy appearance; the terminal joints of the palpi are shorter than those of *Anthene*; on the hind wing, veins 2, 3, and 5 are shorter; there are no indications of the tornal hair tufts so characteristic of *Anthene*.

The inclusion of this species in *Pseudodipsas* may be only a temporary expedient; both *rufimargo* and *digglesii* exhibit certain characters in common, differing from those of the type species of *Pseudodipsas* (*eone* Felder) to a degree which might be considered sufficient to justify generic separation therefrom.

Some difficulty has been encountered in attempting to reconcile the original description with the characters exhibited by the type; therefore a more detailed description of the underside is given below, omitting the points already mentioned.

Underside ♂. On the fore wing, the ground colour is pale grey-brown, having a slight satin-like texture, quite unlike that of *Anthene*. The submarginal markings are almost identical with those of *digglesii*, consisting of a series of fine dark lunules, the lunule in area 1 being expanded into an irregularly shaped patch. The pattern in the disc consists of rounded spots, of a deeper shade of the ground colour, each enclosed by a dingy white ring. These spots are arranged in three transverse series as follows: there are two spots placed one above the other in the cell; the discoidal spot is large, above it being two small obliquely placed elongate spots in areas 7 and 9 respectively, and below it a tiny spot in the base of area 3, followed by a larger one in the base of area 2; beyond these, is the median band consisting of 5 spots placed in areas 2-6, those in areas 2 and 3 being nearer to the margin than are those in areas 4-6.

The hind wing is coloured like the fore wing; its margins are very like those of *digglesii*, having dark submarginal lunules, each accompanied distally by an orange spot; these orange spots are each edged outwardly with metallic silvery blue. The ends of veins 1 and 2 each bear a black spot. In the disc, there are four series of rounded spots arranged thus: a basal series, consisting of a spot near the costa, two conjoined spots in the cell, and a fourth below the median vein; next, a curved series of irregularly shaped and partly coherent spots running from below vein 1, through the cell, and terminating with an oval spot in area 7; then, a series of three spots, the first at the base of area 2, the next at the discoidal, and the third in area 7 near the costa; lastly a series of 8 spots, forming a band and broken at veins 2 and 7.

The formation of the genitalia is very similar to that of *digglesii*, the main difference being the absence of a pronounced saccus.

In B.M. (N.H.) from NEW GUINEA: Vulcan Island, 1 ♂ (holotype), 1913-4 (*Meek*).

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